IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Raymond Kurzweil	Art Unit	: 3664
Serial No.	: 10/734,617	Examiner	: Marc McDieunel
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Title	: VIRTUAL ENCOUNTERS		

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APPEAL BRIEF ON BEHALF OF RAYMOND KURZWEIL

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(i.) Real Party In Interest

The real party in interest in the above application is Kurzweil Technologies, Inc.

(ii.) Related Appeals and Interferences

The Appellant is not aware of any appeals or interferences related to the above-identified patent application.

(iii.) Status of Claims

This is an appeal from the decision of the Primary Examiner in an Office Action dated December 5, 2007, rejecting claims 1-20, all of the claims in the application. The claims have been twice rejected. Claims 1-20 are the subject of this appeal.

(iv.) Status of Amendments

Appellant filed a Reply to the Final Office Action. In the Advisory Action, the examiner indicated entry of the Reply. No amendments were made to the claims in response to the final rejection. All previously filed amendments have been entered. Appellant filed a Notice of Appeal on **May 1, 2008.**

(v.) Summary of Claimed Subject Matter

Claim 1

One aspect of Appellant's invention is set out in claim 1 as a virtual reality encounter system. "*Referring to FIG. 1, a virtual encounter system 10 includes in a first location A, a mannequin 12a, a communication gateway 16a, a set of goggles 20a worn by a user 22a, and two wireless earphones (earphone 24a and earphone 26a) also worn by user 22a. System 10 can further include in a location B, a mannequin 12b, a communication gateway 16b, a set of goggles 20b worn by a user 22b, and two wireless earphones (earphone 24b and earphone 26b)*

also worn by user 22b. Gateway 16a and gateway 16b are connected by a network 24 (e.g., the Internet)." [1]

The inventive features of claim 1 include motion sensors positioned on a human user, the motion sensors sending motion signals corresponding to movements of the user, as detected by the motion sensors relative to a reference point, "*Referring to FIGS. 7A and 7B, the user 22a is shown wearing motion sensors 101, over portions of their bodies, and in particular over those portions of the body that exhibit movement.*"[2], the motion signals sent over a communications network. "*when the user 22a moves their right hand, a sensor in the right hand sends a signal through the network to a motion actuator on the robot. The robot 12b in turn moves its right hand.*"[3]

The inventive features of claim 1 also include a set of goggles worn by the user, the goggles including a display to render video signals received from the communications network from at least one camera. "*Referring to FIG. 3, each set of goggles 20a and 20b includes one left display (left display 56a and left display 56b) and one right display (right display 60a and right display 60b). Each set of goggles 20a and 20b includes a receiver (e.g., receiver 70a and receiver 70b) containing a battery source (not shown). Receivers 70a-70b receive the audio and video signals transmitted from processors 16a-16b.*"[4]

The inventive features of claim 1 also include a humanoid robot, receiving, from the communications network, the motion signals to induce movement of the robot according to movement of the human user, "*... a robot 12b includes a series of motion actuators 103. Each motion actuator 103 placement corresponds to a motion sensor 101 on the user 22a so that each motion sensor activates a motion actuator in the robot that makes the corresponding movement. For example, when the user 22a moves their right hand, a sensor in the right hand sends a signal through the network to a motion actuator on the robot. The robot 12b in turn moves its right hand.*"[5], the humanoid robot further comprising: the at least one camera coupled to humanoid robot, the camera for sending video signals to the communications network for reception by the

[1] Specification page 3, lines 17-26.
[2] Id. page 6, lines 18 to 21
[3] Id. lines 27 to 30.
[4] Id. page 3, lines 22-28.
[5] page 6, lines 22-30,

set of goggles. "*Referring to FIGS. 2A and 2B, each mannequin 12a-12b includes a camera (e.g., camera 30a and camera 30b) positioned in a left eye socket (e.g., left eye socket 34a and left eye socket 34b), and a camera (e.g., camera 36a and camera 36b) positioned in a right eye socket (e.g., right eye socket 38a and right eye socket 38b).*" *[Specification page 4, lines 6-11]. "Each mannequin 12a-12b further includes a transmitter (e.g., transmitter 72a and transmitter 72b) containing a battery (not shown). Transmitters 72a-72b send the audio and video signals from the cameras and the microphones to communication gateway 16a-16b.*" [6]

Claim 13

Claim 13 is directed to a method of having a virtual encounter. Support for this feature is found in the description of FIG. 1 discussed above.

The inventive features of claim 13 include sending motion signals from motion sensors positioned on a human user, the motion signals corresponding to movements of the human user as detected by the motion sensors relative to a reference point, the motion signals being transmitted over a communications network. "*Referring to FIGS. 7A and 7B, the user 22a is shown wearing motion sensors 101, over portions of their bodies, and in particular over those portions of the body that exhibit movement.*"[7] the motion signals sent over a communications network. "*when the user 22a moves their right hand, a sensor in the right hand sends a signal through the network to a motion actuator on the robot. The robot 12b in turn moves its right hand.*" [8]

The inventive features of claim 13 also include receiving video signals from a camera via the communications network, with receiving using a set of goggles worn by the user, the goggles including a display to render the received video signals from the camera. "*Referring to FIG. 5, each communication gateway 16a-16b includes an adapter 78a-78b, a processor 80a-80b, memory 84a-84b, an interface 88a-88b and a storage medium 92a-92b (e.g., a hard disk). Each adapter 78a-78b establishes a bi-directional signal connection with network 24. Each interface 88a-88b receives, via transmitter 72a-78b in mannequin 12a-12b, video signals from cameras 30a-30b, 36a-36b and audio signals from microphones 42a-42b, 48a-48b. Each interface 88a-*

[6] Specification page 4, lines 17-21.
[7] [Specification page 6, lines 18 to 21],
[8] [Specification page 6, lines 27 to 30].

88b sends video signals to displays 56a, 56b in goggles 20a-20b via receiver 70a-70b. Each interface 88a sends audio signals to earphones 24a-24b, 26a-26b in goggles 20a-20b via receiver 74a-74b." [9]

The inventive features of claim 13 also include receiving, at a humanoid robot, the motion signals sent by the motion sensors, via the communications network. "*For example, a robot 12b includes a series of motion actuators 103. Each motion actuator 103 placement corresponds to a motion sensor 101 on the user 22a so that each motion sensor activates a motion actuator in the robot that makes the corresponding movement. For example, when the user 22a moves their right hand, a sensor in the right hand sends a signal through the network to a motion actuator on the robot. The robot 12b in turn moves its right hand.*" [10]

The inventive features of claim 13 also include sending video signals received from the camera positioned on the humanoid robot to the goggles, via the communication network. "*Referring to FIG. 5, each communication gateway 16a-16b includes an adapter 78a-78b, a processor 80a-80b, memory 84a-84b, an interface 88a-88b and a storage medium 92a-92b (e.g., a hard disk). Each adapter 78a-78b establishes a bi-directional signal connection with network 24. Each interface 88a-88b receives, via transmitter 72a-78b in mannequin 12a-12b, video signals from cameras 30a-30b, 36a-36b and audio signals from microphones 42a-42b, 48a-48b. Each interface 88a-88b sends video signals to displays 56a, 56b in goggles 20a-20b via receiver 70a-70b. Each interface 88a sends audio signals to earphones 24a-24b, 26a-26b in goggles 20a-20b via receiver 74a-74b.*" [11]

The inventive features of claim 13 also include inducing a movement of the robot according to movement of the human user. "*when the user 22a moves their right hand, a sensor in the right hand sends a signal through the network to a motion actuator on the robot. The robot 12b in turn moves its right hand.*" [12]

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[9] [Specification page 5, lines 3 to 14].
[10] [Specification page 6, lines 22 to 30].
[11] [Specification page 5, lines 3 to 14].
[12] [Specification page 6, lines 27 to 30].

(vi.) Grounds of Rejection to be Reviewed on Appeal

1) Claims 1-4, 7-15 and 17-20 stand rejected under 35 U.S.C. 102(b) as being anticipated by Hasunuma *et al.* (Development of Teleportation Master System with a Kinesthetic Sensation of Presence, 1999).[13]

2) Claims 5 and 16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Hasunuma *et al.* [14]

(vii.) Argument

Anticipation

"It is well settled that anticipation under 35 U.S.C. §102 requires the presence in a single reference of all of the elements of a claimed invention." *Ex parte Chopra*, 229 U.S.P.Q. 230, 231 (BPA&I 1985) and cases cited.

"Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim." *Connell v. Sears, Roebuck & Co.*, 220 U.S.P.Q. 193, 198 (Fed. Cir. 1983).

"This court has repeatedly stated that the defense of lack of novelty (i.e., 'anticipation') can only be established by a single prior art reference which discloses each and every element of the claimed invention." *Structural Rubber Prod. Co. v. Park Rubber Co.*, 223 U.S.P.Q. 1264, 1270 (Fed. Cir. 1984), citing five prior Federal Circuit decisions since 1983 including *Connell*.

In a later analogous case the Court of Appeals for the Federal Circuit again applied this rule in reversing a denial of a motion for judgment n.o.v. after a jury finding that claims were anticipated. *Jamesbury Corp. v. Litton Industrial Prod., Inc.*, 225 U.S.P.Q. 253 (Fed. Cir. 1985).

After quoting from *Connell*, "Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim," 225 U.S.P.Q. at 256, the court observed that the patentee accomplished a constant tight contact in a ball valve by a lip on the seal or ring which interferes with the placement of the ball. The lip protruded into the

[13] The examiner rejects claim 6 in the argument portion of the rejection, but fails to mention claim 6 in the summary of the rejection.
[14] The examiner explicitly withdrew the rejection in item 5 on page 2 of the Office Action, but maintained the rejection in the remarks. Appellant addresses the rejection below.

area where the ball will be placed and was thus deflected after the ball was assembled into the valve. Because of this constant pressure, the patented valve was described as providing a particularly good seal when regulating a low pressure stream. The court quoted with approval from a 1967 Court of Claims decision adopting the opinion of then Commissioner and later Judge Donald E. Lane:

> [T]he term "engaging the ball" recited in claims 7 and 8 means that the lip contacts the ball with sufficient force to provide a fluid tight seal **** The Saunders flange or lip only sealingly engages the ball 1 on the upstream side when the fluid pressure forces the lip against the ball and never sealingly engages the ball on the downstream side because there is no fluid pressure there to force the lip against the ball. The Saunders sealing ring provides a compression type of seal which depends upon the ball pressing into the material of the ring. *** The seal of Saunders depends primarily on the contact between the ball and the body of the sealing ring, and the flange or lip sealingly contacts the ball on the upstream side when the fluid pressure increases. 225 U.S.P.Q. at 258.

Relying on *Jamesbury*, the ITC said, "Anticipation requires looking at a reference, and comparing the disclosure of the reference with the claims of the patent in suit. A claimed device is anticipated if a single prior art reference discloses all the elements of the claimed invention as arranged in the claim." *In re Certain Floppy Disk Drives and Components Thereof*, 227 U.S.P.Q. 982, 985 (U.S. ITC 1985).

Obviousness

"It is well established that the burden is on the PTO to establish a prima facie showing of obviousness, *In re Fritsch*, 972 F.2d. 1260, 23 U.S.P.Q.2d 1780 (C.C.P.A., 1972)."

In *KSR Intl. Co. v. Teleflex Inc.*, 127 S.Ct. 1727 (2007), the Supreme Court reversed a decision by the Court of Appeal's for the Federal Circuit decision that reversed a summary judgment of obviousness on the ground that the district court had not adequately identified a motivation to combine two prior art references. The invention was a combination of a prior art repositionable gas pedal, with prior art electronic (rather than mechanical cable) gas pedal position sensing. The Court first rejected the "rigid" teaching suggestion motivation (TSM)

requirement applied by the Federal Circuit, since the Court's obviousness decisions had all advocated a "flexible" and "functional" approach that cautioned against "granting a patent based on the combination of elements found in the prior art."

In *KSR* the Supreme Court even while stating that: "the Court of Appeals drew the wrong conclusion from the risk of courts and patent examiners falling prey to hindsight bias," warned that: "a factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning."

> The Court of Appeals, finally, drew the wrong conclusion from the risk of courts and patent examiners falling prey to hindsight bias. A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *Graham*, 383 U. S., at 36 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "'guard against slipping into the use of hindsight'" (quoting *Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co.*, 332 F. 2d 406, 412 (CA6 1964))). Rigid preventative rules that deny factfinders recourse to common sense, however, are neither necessary under our case law nor consistent with it.

With respect to the genesis of the TSM requirement, the Court noted that although "As is clear from cases such as Adams[15], a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known."

"The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon*, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

> Although the Commissioner suggests that [the structure in the primary prior art reference] could readily be modified to form the

[15] United States v. Adams, 383 U. S. 39, 40 (1966)

> [claimed] structure, "[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Laskowski*, 10 U.S.P.Q. 2d 1397, 1398 (Fed. Cir. 1989).

"The claimed invention must be considered as a whole, and the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination." *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick*, 221 U.S.P.Q. 481, 488 (Fed. Cir. 1984).

> Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under Section 103, teachings of references can be combined only if there is some suggestion or incentive to do so. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984) (emphasis in original, footnotes omitted).

"The critical inquiry is whether 'there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination.'" *Fromson v. Advance Offset Plate, Inc.*, 225 U.S.P.Q. 26, 31 (Fed. Cir. 1985).

1) Claims 1-4, 7-15 and 17-20 are patentable over Hasunuma *et al.* (Development of Teleportation Master System with a Kinesthetic Sensation of Presence, 1999).

Claims 1, 3, 6, 8, 12, 13, 17 and 20

For the purpose of this appeal only, claims 1 and 13 stand or fall together. Claim 1 is representative of this group of claims.

Claim 1 calls for the features of ... motion sensors positioned on a human user, the motion sensors sending motion signals corresponding to movements of the user, as detected by the motion sensors relative to a reference point ... over a communications network; a set of goggles worn by the user, the goggles including a display to render video signals received from a camera; and a humanoid robot, receiving, from the communications network, the motion signals

... the humanoid robot further comprising at least one camera coupled to humanoid robot, the camera for sending video signals to the communications network for reception by the set of goggles.

In rejecting Claim 1 over Hasunuma, the examiner merely pointed to Fig. 1 and Fig. 2 with some general comments. It is also noted that the examiner stated: "**the entire concept of this application has been embedded into Hasunuma's et al. publication. See entire publication.**" Appellant disagrees with this allegation because the gist of the rejection is unclear and the examiner made no attempt to indicate any descriptive matter or cited sections in the reference in a specific and clear manner (e.g., page number, paragraph number and etc.). Appellant contends the initial burden is on the examiner to provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the reference. See *In re Fritsch*, 972 F.2d. 1260, 23 U.S.P.Q.2d 1780 (C.C.P.A., 1972). "It is well established that the burden is on the PTO to establish a prima facie showing of obviousness."

As the Federal Circuit pointed out in *In re Lee* 277 F.3d 1338, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002), "Tribunals of the PTO are governed by the Administrative Procedure Act, and their rulings receive the same judicial deference as do tribunals of other administrative agencies. *Dickinson v. Zurko*, 527 U.S. 150, 119 S.Ct. 1816, 144 L.Ed.2d 143, 50 USPQ2d 1930 (1999)."

As the Federal Circuit noted in *Lee*:

> The Administrative Procedure Act, which governs the proceedings of administrative agencies and related judicial review, establishes a scheme of "reasoned decision making." Not only must an agency's decreed result be within the scope of its lawful authority, but the process by which it reaches that result must be logical and rational.
>
> > *Allentown Mack Sales and Service, Inc. v. National Labor Relations Bd.,* 522 U.S. 359, 374, 118 S.Ct. 818, 139 L.Ed.2d 797 (1998) (citation omitted). This standard requires that the agency not only have reached a sound decision, but have articulated the reasons for that decision. The reviewing court is thus enabled to perform meaningful review within the strictures of the APA, for the court will have a basis on which to determine "whether the decision was based on the relevant factors and whether there has been a clear error of judgment." *Citizens to Preserve Overton*

> *Park v. Volpe,* 401 U.S. 402, 416, 91 S.Ct. 814, 28 L.Ed.2d 136 (1971).

The examiner is clearly unwilling or unable to show specifically where in the reference these features are taught. Therefore, the examiner has clearly articulated for the record where the features of the claims were found and thus failed to meet their burden of reasoned decision-making under APA.

As the Federal Circuit further observed in *Lee*:

> Judicial review of a Board decision denying an application for patent is thus founded on the obligation of the agency to make the necessary findings and to provide an administrative record showing the evidence on which the findings are based, accompanied by the agency's reasoning in reaching its conclusions. See *In re Zurko*, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed.Cir.2001) (review is on the administrative record); *In re Gartside*, 203 F.3d 1305, 1314, 53 USPQ2d 1769, 1774 (Fed.Cir.2000) (Board decision "must be justified within the four corners of the record"). 277 F.3d at 1344.

Appellant contends that the examiner's avoidance of addressing exactly where in the reference the features of claim 1 were found, denies Appellant of the notice necessary to apprise Appellant of the basis for the rejection and thwarts subsequent judicial review in contravention of the Administrative Procedure Act.

Nonetheless, Appellant will address this rejection. Reproduced below are Figures 1 and 2 from the Hasunuma's et al. publication.

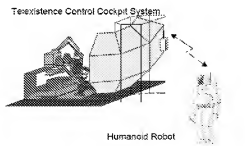

Figure 1. Advanced remote control humanoid robot platform

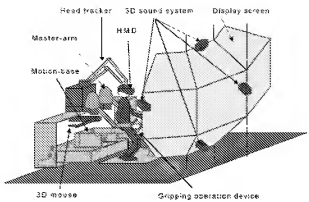

Figure 2. Configuration of telexistence control cockpit system

Appellant contends that Hasunuma's et al. depictions in Figs. 1 and 2 as well as the description in the reference in its entirety, neither describes nor suggests the features of claim 1. For example, the reference does not disclose or render obvious "motion sensors positioned on a human user, the motion sensors sending motion signals corresponding to movements of the user, as detected by the motion sensors relative to a reference point, the motion signals over a communications network."

In contrast, Hasunuma states explicitly on page 2 that:

> **When traveling, an operator sends a command by using a display screen with the 3D mouse as a command input device; surrounding scenery from the robot is displayed on the other screens with some auxiliary information, and kinesthetic sensation is displayed by moving the motion-base. When working on a dexterous task with arms, an operator manipulates by using master-arms and gripping operation devices, watching views on the HMD from robot eye cameras; kinesthetic sensation of inclination of robot upper body is displayed with the motion-base, and force and torque at wrists of robot and gripping force can be fed back to the operator through the master-arms and the gripping operation devices.**
>
> **In use of the teleoperation master system, an operator leans on a seat of the motion-base and pushes his hands in attachments of the master-arms and the gripping operation devices. Then, through the master-arm and the gripping operation device, the operator can remotely manipulate the robot arms and hands. The motion-base can display vibration, shock, and acceleration acting on the robot and upper body's inclination to the operator. (Emphasis added)**

As such, in order to manipulate a humanoid robot, Hasunuma requires construction of and use of a master-arm and a gripping device to control the robot arms and hands remotely. The reference is understood to focus on how to construct the master-arm and gripping device

with similar joint arrangement of human arms. In this regard, Hasunuma reads: "**The elbow angle is derived from a moving direction of an operator's art which is measured by sensors on the master-art. Several optical sensor are located on a lower link of the mater-arm. By using information from the sensors, the elbow angle is controlled so that it roughly keeps a relative distance between a human operator's arm and the master-arm.**"[16]

As such, Hasunuma discloses placing sensors on a mechanical component, namely, a master-arm, to control the elbow angle between a human operator and the mechanical component. Upon obtaining the elbow angle information, Hasunuma generates an input command for a slave-arm. That is, Hasunuma disposes various motion sensors on the master-arm to detect and track a human operator's motions. This disclosure teaches away from claim 1 which requires positioning motion sensors on a human user.

Appellant further contends placing motion sensors on the human operator would destroy the intent, purpose and function of the Hasunuma mater-arm system and motion-base system for its intended purposes because such a modification would not necessarily require construction of the master-arm and consequently would not be able to provide the human operator with gripping sensation through the master-arm, and the motion-base which provides locomotive sensation of a humanoid robot.[17] Thus, the reliance on Hasunuma is inappropriate.

Claim 13 drawn to the method analogue of claim 1, is allowable for at least the reasons given for claim 1.

Claims 2 and 14

For the purpose of this appeal only, claims 2 and 14 stand or fall together. Claim 2 is representative of this group of claims.

Claim 2 serves to further distinguish over Hasunuma. Claim 2 limits claim 1 and requires that: "the robot includes actuators corresponding to the motion sensors, the actuators causing the robot to move."

The examiner argues that: "**As per claim 2 and 14, Hasunuma et al., teaches a teleportation system and an associated method wherein the robot includes actuators corresponding to the motion sensors, the actuators causing the robot to move (see fig. 1 and 2, particularly the humanoid which contains motion sensors, actuator etc.).**"[18]

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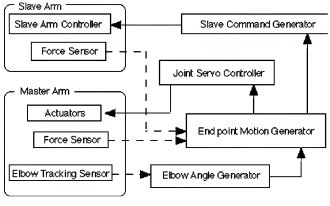
[16] Hasunuma, Col. 2, page 3.
[17] Id. Abstract.
[18] Office Action page 3.

Appellant disagrees. Appellant contends that in light of the reproduced figures above, it indeed requires imagination to conclude that both figures describe or suggest all the elements of claim 2 at least because neither sensors nor the actuators, as claimed, are nowhere to be seen in the figures or described in the paper.

Moreover, from a technical point of view, Hasunuma is not understood to use actuators to manipulate a humanoid robot (i.e., a "slave-arm"), as required by Appellant's claim 2. Rather, Hasunuma shows in Fig. 5 (reproduced below) that slave arm sends force signals to the master-arm and receives instructions from a slave command generator. The slave-arm does not bear any actuators responsive to motion sensors. In this regards, Hasunuma states: "**We implemented seven actuators for seven joints of the master-arm for force feedback in this case, we control six of them to perform force feedback control to a human operator, and the other to adjust elbow angle.**"[19]



Although there is no doubt that the master-arm controls the robot, nothing in Hasunuma describes a robot including actuators corresponding to the motion sensors, the actuators causing the robot to move." Therefore, Claim 2 is distinct and allowable over the art.

Claims 4, 9, 15 and 18

For the purpose of this appeal only, claims 4, 9 and 18 stand or fall together. Claim 4 is representative of this group of claims.

[19] Hasunuma, Col. 2, page 3.

Claim 4 further limits claim 3 and requires "a microphone coupled to the body of the robot, the microphone for sending audio signals to the communications network; and a transducer disposed in a headset worn by the user, to transduce the audio signals received from the microphone."

While Hasunuma discloses an audio-visual display system in Fig. 2, to the extent the audio feature is being referenced therein, Hasunuma fails to describe or suggest a microphone coupled to the body of the robot to send audio signals to the communications network, much less a transducer disposed in a headset worn by the user, to transduce the audio signals received from the microphone. As noted above the examiner has failed to even address or attempt to find such features ins Hasunuma. Accordingly, Hasunuma cannot anticipate claim 4.

Claim 7

Claim 7 further limits claim 4 by including an interface coupled to the interface network, the interface having one or more channels for: receiving the audio signals from the microphone; receiving the video signals from the camera; sending the audio signals to the set of goggles; and sending the audio signals to the transducer. As shown in the schematic block diagram of Fig. 3 in Hasunuma, the communication control block is connected to the slave robot communication control block through wireless LAN or optical fiber. However, nothing in the reference shows an interface with dedicated channels for transmitting audio and video signals, as required by claim 7.

Claims 10 and 19

For the purpose of this appeal only, claims 10 and 19 stand or fall together. Claim 10 is representative of this group of claims.

Claim 10 further limits claim 9 to require the set of goggles to include a receiver to receive the video signals. As shown in Fig. 2, Hasunuma et al. depicts a head mount display (HMD) with a head tracker and nine display screens that are projected in front of the user for displaying surrounding scenery of the robot. Hasunuma et al. neither describes nor suggests "a set of goggles worn by the user, the goggles including a display to render video signals received

from ... the at least one camera coupled to humanoid robot, ... ," as required by claim 1, much less a receiver included in the set of goggles to receive the video signals.

2) Claims 5 and 16 are patentable over Hasunuma *et al.* (Development of Teleportation Master System with a Kinesthetic Sensation of Presence, 1999).

Claims 5 and 16

For the purpose of this appeal only, claims 5 and 16 stand or fall together. Claim 5 is representative of this group of claims.

Claim 5 is neither described nor suggested by Hasunuma. Claim 5 is directed to a virtual encounter with two users and robots. Specifically, claim 5 limits the system of claim 4 by specifying the robot of claim 4 is at a first location and the set of goggles of claim 4 is at a second location. Claim 5 adds the feature of: "... a second humanoid robot in the second location, the second humanoid robot having a second microphone and a second camera for sending audio and video signals over the communication network ... a second set of goggles worn by a second user at the first location to receive the video signals from the first camera ... and a second earphone worn by the second user ... to receive the audio signals from the first microphone ... .

The examiner acknowledges that Hasunuma does not teach the second humanoid robot and second set of goggles. Nevertheless, the examiner argues that: "**it would have been obvious to modify Hasunuma et al. teachings by using more than one robot/mannequin, that would require more than one goggle to receive video signals or any signals, because modification would have been a desire feature into Hasunuma et al. teachings in order to improve the usability and the functionability of system as a whole.**" Appellant disagrees.

Hasunuma is directed to a virtual robot platform for cockpit systems. In particular, Hasunuma describes that: "**The platform consists of a virtual robot platform, three actual humanoid robots, and three telexistence control cockpit systems to operate each humanoid robot. A set of a humanoid robot and a telexistence control cockpit system can form an advanced remote control humanoid robot platform; an image of the platform is shown in Figure 1.**"[20]

[20] Hasunuma, Col. 2, page 1.

Thus, clearly Hasunuma contemplates more than one robot. However, what is neither described nor suggested by Hasunuma is that the robot (of claims 4 and 1) is at a first location and the set of goggles (of claims 4 and 1) is at a second location and the system includes "a second humanoid robot in the second location … and a second set of goggles worn by a second user at the first location … and a second earphone worn by the second user at the first location … ."

Hasunuma does not suggest two locations with a robot and user in each of those locations. Any reasonable, logical modification of Hasunuma to accommodate two robots would provide the users in one location and the robots in different locations. No mention is made of a user/robot pairing. Because, Hasunuma is not directed to a virtual encounter in which the robots are proxies for the humans it would not be apparent why one would modify Hasunuma to provide two users at two different locations controlling two robots at the two different locations. The desirability of placing the robots in two different locations only results from an improper application of hindsight using applicant's claims and specification as a guide. Accordingly, claim 5 is allowable over Hasunuma.

In Response to Applicant's prior arguments, the examiner stated with respect to claim 5 that: "As to the reference not teaching 'a second humanoid robot and a second set of goggles' Examiner maintain his position by stating: it would have been obvious to modify Hasunuma et al. teachings by using more than one robot/mannequin, that would require more than one goggle to receive video signals or any signals, because modification would have been a desire feature into Hasunuma et al. teachings in order to improve the usability and the functionability of system as a whole, as seen above."[21]

Applicant points out that Hasunuma already discloses two robots, but does not disclose two robots in two different locations, controlled by two users each respectively in one of the two different locations. Accordingly the suggestion to modify is not present.

Claim 16 is allowable over Hasunuma for analogous reasons as those given for claim 5.

[21] Final Action, page 8.

Conclusion

Appellant submits, therefore, that Claims 1-20 are allowable over Hasunuma. Therefore, the Examiner erred in rejecting Appellant's claims and should be reversed.

Respectfully submitted,

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Appendix of Claims

1. A virtual reality encounter system comprising,

motion sensors positioned on a human user, the motion sensors sending motion signals corresponding to movements of the user, as detected by the motion sensors relative to a reference point, the motion signals sent over a communications network;

a set of goggles worn by the user, the goggles including a display to render video signals received from the communications network from at least one camera; and

a humanoid robot, receiving, from the communications network, the motion signals to induce movement of the robot according to movement of the human user, the humanoid robot further comprising:

the at least one camera coupled to humanoid robot, the camera for sending video signals to the communications network for reception by the set of goggles.

2. The system of claim 1, wherein the robot includes actuators corresponding to the motion sensors, the actuators causing the robot to move.

3. The system of claim 1, wherein the robot has life-like features, the robot comprises:

a body, the body having a head portion with at least one eye socket; and with the at least one camera coupled to the head portion of the body in the at least one eye socket.

4. The system of claim 3, further comprising:

a microphone coupled to the body of the robot, the microphone for sending audio signals to the communications network; and

a transducer disposed in a headset worn by the user, to transduce the audio signals received from the microphone.

5. The system of claim 4, wherein the robot is at a first location and the set of goggles is at a second location the system further comprising:

a second humanoid robot in the second location, the second humanoid robot having a second microphone and a second camera for sending audio and video signals over the communication network; and

a second set of goggles worn by a second user at the first location to receive the video signals from the first camera, via the communications network; and

a second earphone worn by the second user at the first location to receive the audio signals from the first microphone, via the communications network.

6. The system of claim 1, wherein the communications network comprises:

a first communication gateway in the first location; and

a second communication gateway in the second location, the second processor connected to the first processor via a network.

7. The system of claim 4 further comprises an interface coupled to the interface network, the interface having one or more channels for:

receiving the audio signals from the microphone;

receiving the video signals from the camera;

sending the audio signals to the set of goggles; and

sending the audio signals to the transducer.

8. The system of claim 4, wherein the body includes an eye socket and the camera is positioned in the eye socket.

9. The system of claim 4, wherein the body includes an ear canal and the microphone is positioned within the ear canal.

10. The system of claim 9, wherein the set of goggles, comprise a receiver to receive the video signals.

11. The system of claim 4, wherein the robot, comprises a transmitter to wirelessly send the audio signals, motion signals and the video signals to the communications network.

12. The system of claim 1, further comprising:

a first communication gateway in the first location the first communication gateway further comprising:

a computing device that receives the motion signals and transmits the motion signals over the communications network.

13. A method of having a virtual encounter, comprising:

sending motion signals from motion sensors positioned on a human user, the motion signals corresponding to movements of the human user as detected by the motion sensors relative to a reference point, the motion signals being transmitted over a communications network;

receiving video signals from a camera via the communications network, with receiving using a set of goggles worn by the user, the goggles including a display to render the received video signals from the camera;

receiving, at a humanoid robot, the motion signals sent by the motion sensors, via the communications network;

sending video signals received from the camera positioned on the humanoid robot to the goggles, via the communication network; and

inducing a movement of the robot according to movement of the human user.

14. The method of claim 13, wherein receiving comprises receiving signals from the motion sensors at corresponding actuators coupled to the robot, causing a movement comprises the actuators causing the robot to move.

15. The method of claim 13, further comprising:

sending audio signals over the communications network, the audio signals being produced from a microphone coupled to the robot;

transducing the audio signals received from the communications network using a transducer.

16. The method of claim 15, wherein the robot is at a first location and the set of goggles is at a second location and the method further comprises:

sending audio signals to the communications network from a second microphone coupled to a second robot at the first location, the second robot having life-like features;

sending video signals to the communications network from a second camera coupled to the second robot having life-like features;

rendering the video signals received from the communications network onto a monitor coupled to a second set of goggles worn by a user at the first location; and

transducing the audio signals received from the communications network using a second transducer on the user at the first location.

17. The method of claim 15, wherein the robot includes an eye socket and the camera is positioned in the eye socket.

18. The method of claim 15, wherein the robot includes an ear canal and further comprising positioning the microphone within the ear canal.

19. The method of claim 15, wherein the set of goggles, comprises a receiver to receive the video signals.

20. The method of claim 15, wherein the robot further comprises a transmitter to wirelessly send the audio signals, the motion signals and the video signals to the communications network.

Evidence Appendix

NONE

Related Proceedings Appendix

NONE